

TO: X3T9.2 Membership

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SUBJECT: Format Track Definition for ATA

### Format Track (50H)

The Sector Count Register contains the number of sectors per track.

The track address is specified in the Cylinder High, Cylinder Low, and Drive/Head Registers. When the command is accepted, the drive sets the DRQ bit and waits for the host to fill the sector buffer. When the sector buffer is full, the drive clears DRQ, sets BSY and begins command execution.

The content of the sector buffer is not written to the media. The format is defined in Table 1 when in translate mode and Table 2 when in LBA mode.

Word	Content						
0	Logical Sector Descriptor (zero): <table border="0"> <tr> <td><u>bits</u></td> <td><u>Content</u></td> </tr> <tr> <td>15-8</td> <td>Logical Sector Number</td> </tr> <tr> <td>7-0</td> <td>Descriptor Code (see Table 3)</td> </tr> </table>	<u>bits</u>	<u>Content</u>	15-8	Logical Sector Number	7-0	Descriptor Code (see Table 3)
<u>bits</u>	<u>Content</u>						
15-8	Logical Sector Number						
7-0	Descriptor Code (see Table 3)						
.	.						
.	.						
.	.						
n	Logical Sector Descriptor (n)						
n+1	zero						
.	.						
.	.						
.	.						
255	zero						

Table 1: Sector buffer format and meaning for translate mode

Word	Content
0	First LBA to reassign (MSW)
1	First LBA to reassign (LSW)
.	.
.	.
.	.
n	Last LBA to reassign (MSW)
n+1	Last LBA to reassign (LSW)
n+2	zero
.	.
.	.
.	.
255	zero

**Table 2: Sector buffer format and meaning for LBA mode**

#### Mapped Mode

In mapped mode, one word represents each sector, the words being contiguous from the start of a sector. Words appear in the same sequence as the logical track.

If the Descriptor codes in Table 3 are all set to format as good sectors, the drive will write a constant 00H pattern to the requested sectors rather than physically formatting the logical track. If any other codes are present in the buffer, the drive will format the logical track. In essence, the Format Track command acts as a reassign/un-reassign command for translate mode.

Descriptor Code	Meaning
00h	Format sector as good
20h	Un-reassigned the alternate location for this sector
40h	Assign this sector to an alternate location
80h	Format sector as bad

**Table 3: Descriptor code definition**

#### LBA mode

In LBA mode, each two-word entry represents one LBA value to be reassigned. Up to 128 LBAs may be reassigned with one command. The LBAs are in ascending order and the number of valid entries are stored in the Sector Count register. Following the last valid LBA, the remaining words of the sector buffer shall be filled with zeros. If an error occurs while reassigning a block, the error location will be placed in the task file registers (in LBA form).